

REMARKS

In response to the Final Office Action dated August 3, 2007 and Advisory Action dated November 27, 2007, Applicant respectfully requests reconsideration based on the attached amendment and the following remarks. Applicant respectfully submits that the claims as presented herein are in condition for allowance.

Claims 1, 2, 4-7, 10-15, 17 and 19 are pending in the present application. Claims 1, 4, 6 and 15 have been amended, while claims 3, 8, 9, 16 and 18 have been previously canceled and claims 7-14 and 17-19 are presently canceled. No new matter has been added by the amendments. Applicant respectfully requests reconsideration of claims 1-2, 4-6 and 15 based upon the amendments and the following remarks.

Claim Objections

Claims 4, 6, 10, 12 and 19 stand objected to for informalities. The Examiner states that the limitation "the reference signal" in claims 4, 6, 10 and 12 lacks sufficient antecedent basis because claims 1 and 7 have been previously amended to remove the limitation "the reference signal". The Examiner states that claim 19 stands objected to for being dependent upon a rejected base claim, namely claim 18. Appropriate correction is required.

Claims 10 and 12 have been canceled rendering any objection thereto moot. Claims 4, 6 and 10 have been amended to delete reference to "the reference signal" and instead recite "analog signal of the photocell of the adjacent pixel" finding antecedent basis from previously amended claim 1.

Accordingly, it is respectfully requested that the objections to claims 4, 6, 10, 12 and 19 be withdrawn.

Claim Rejections Under 35 U.S.C. § 102

To anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Bariant, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), cert. denied, 484 U.S. 1007 (1988).

Claims 1, 2, 4-6 and 15 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Stettner (U.S. Patent No. 6,362,482). The Examiner states that Stettner discloses all of the elements of the abovementioned claims, primarily in FIG. 7, column 3, line 66- column 4, line 35, column 5, line 64-column 6, line 39, column 14, lines 41-64, and column 17, line 51-column 18, line 7. Applicant respectfully traverses for at least the following reasons.

Claims 1 and 15 have been amended to include the limitations of canceled claim 2, which recites, *inter alia*, wherein the digital signal is a digital signal having a 1-bit structure.

Claims 1 and 15 have been amended to include this limitation of canceled claim 2 in order to differentiate the 1-bit structured digital signal based process of the present invention from the analog signal based process of Stettner, so as to overcome the Examiner's rejection under 35 U.S.C 102(e) as shown in the amendment above.

However, on page 2 of the Advisory Action, the Examiner states that Stettner discloses a dynamic comparator (57) in FIG. 8. The Examiner further states that a comparator is thought of as a one-bit analog-to-digital converter (see article about curing comparator with hysteresis) and therefore believes Stettner teaches the limitations of amended claims 1 and 15.

In reply, the present invention relates to an image sensor comprising a photocell, a latch type comparator and a switch. In contrast, Stettner relates to an analog image processor comprising a unit cell line driver (56), an analog algorithm circuit (57) and a Schmitt trigger and memory (53), which correspond to the above components.

More specifically, Stettner discloses that the specific function of the dynamic comparator and amplifier 57 is to compare signals against the reference signal Vcen one at a time. For the image processing algorithm depicted in FIG. 10, the signals from the four surrounding pixels or unit cells are compared against the center reference pixel or unit cell and an output is generated if the surrounding pixel voltage signals are less than the center reference pixel voltage Vcen. (More or less than four comparisons could be made if the algorithm demanded it.) The comparator determines if any of the four voltages (Vdtop, Vdbom, Vdrg, Vdlef) are less than the

reference voltage (V_{cen}). The dynamic comparator and amplifier 57 is designed with a built-in amplifier to avoid the unity gain sensitivity restrictions. The output voltage swing is inverted and the output of the comparator operation is amplified by a factor of about one hundred. The amplifier is AC coupled to the front end of the dynamic comparator so that the amplifier can be both self-biasing and independent of the comparison operation. The voltage amplifier employs a novel self-biasing circuit that eliminates MOSFET threshold variations that would otherwise be induced in biasing this voltage amplifier across the unit cells. This amplified signal is what the Schmitt trigger 53 and address polling processor 54 require in order to produce maximum sensitivity. (Col. 14, lines 41-64).

Therefore, the DYNAMIC comparator 57 of Stettner does not teach or suggest outputting a digital signal in which the digital signal is a digital signal having a 1-bit structure, as recited in amended independent claims 1 and 15.

Thus, it is respectfully submitted that claims 1 and 15, including claims depending therefrom, i.e., remaining claims 2 and 4-6, define over Stettner.

Therefore it is respectfully requested that the rejections of claims 1-2, 4-6 and 15 under 35 U.S.C. § 102(e) be withdrawn.

Claim Rejections Under 35 U.S.C. § 103

Claims 7, 10-13, 17 and 19 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Stettner in view of Goto (U.S. Patent No. 6,982,759, hereinafter "Goto"). The Examiner states that Stettner discloses all of the elements of claims 7, 10, 17 and 12 except, *at least one second photocell for generating a second analog signal corresponding the received quantity of light*, which the Examiner further states is disclosed in FIG 1 and column 2, lines 49-56 and column 5, line 54- column 6, line 14 of Goto. The Examiner states that Stettner discloses all of the elements of claim 11 except, *wherein at least one of the first and second photocells comprises a photo diode and a transistor, the photodiode generating a photocurrent corresponding to the received quantity of light*, which the Examiner further states is disclosed primarily in column 2, lines 57-65 of Goto. The Examiner states that Stettner discloses all of the elements of claim 13 except, *at least a second photocell is arranged inside each of the plurality of pixels*, which the Examiner further states is disclosed primarily in FIG. 1 and column 2, lines

49-56. Furthermore, claim stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Stettner in view of Goto and further in view of Shroyer (U.S. Patent No. 4,805,010, hereinafter "Shroyer"). The Examiner states that Stettner in view of Goto discloses all of the elements of claim 14 except, *the second photocell arranged outside each of the plurality of pixels*, which the Examiner further states is disclosed primarily in column 3, lines 43-61 of Shroyer. Applicant respectfully traverses all of the §1039a) for at least the following reasons.

Claims 7, 10-14, 17 and 19 have been canceled rendering any rejection thereto moot.

Accordingly, it is respectfully requested that the rejection to claims 7, 10-14, 17 and 19 under 35 U.S.C. 103(a) be withdrawn and allow the remaining pending claims to issue.

Conclusion

In view of the foregoing remarks distinguishing the prior art of record, Applicant submits that this application is in condition for allowance. Early notification to this effect is requested. The Examiner is invited to contact Applicant's Attorneys at the below-listed telephone number regarding this Amendment or otherwise regarding the present application in order to address any questions or remaining issues concerning the same. If there are any charges due in connection with this response, please charge them to Deposit Account 06-1130.

Respectfully submitted,

CANTOR COLBURN LLP

By: /James J. Merrick/

James J. Merrick
Registration No. 43,801
Confirmation No. 7809
Cantor Colburn LLP
55 Griffin Road South
Bloomfield, CT 06002
Telephone (860) 286-2929
Customer No. 23413

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